Glossary

aquifer	A layer of permeable rock or soil underlain by impermeable material that is capable of storing significant quantities of water and through which groundwater flows. The saturated portion of an aquifer is referred to as the zone of saturation. An unconfined aquifer is one in which the water table defines the upper water limit. A confined aquifer is sealed above and below by impermeable material. A perched aquifer is an unconfined groundwater body supported by a small impermeable or slowly permeable unit.
average dry weather flow (ADWF)	The average non-storm related wastewater flow between May and October. Composed of the average base flow and the average infiltration/inflow (I/I).
average wet weather flow (AWWF)	The average flow between November 1 and April 30. Composed of the average base flow and the average infiltration/inflow (I/I).
backfill	The operation of refilling an excavation, usually after some structure or pipeline has been placed. Also the material placed in an excavation in the process of backfilling.
base flow	Wastewater flow (not including inflow and infiltration) originating from residential, commercial, and industrial sources. Base flow can also refer to the portion of streamflow contributed by groundwater as opposed to runoff.
best management practice (BMP)	A method, activity, or procedure for reducing the amount of pollution entering a water body. The term originated from the rules and regulations developed pursuant to Section 208 of the Federal Clean Water Act (40 CFR 130). Best management practices may include schedules of compliance, operation and maintenance procedures, and treatment requirements.
brushing laterals	The process where an air-powered motor with a wire brush head is placed in the sewer main and is used to clean up and smooth the edges of the liner where the liner was cut open for a service connection. Also prepares the connection for application of other products.
bypass	A diversion of flow around all or part of the treatment plant in emergencies.
Clean Water Act (CWA)	The Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) as amended by the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500 and PL 93-243). Regulates discharge of pollutants into surface waters of the United States.

Code of Federal Regulations (CFR)	A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.
coliform bacteria (fecal coliform)	Bacteria found in the intestinal tracts of mammals. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces. These organisms may also indicate the presence of pathogens that are harmful to humans.
combined sewers	A conveyance system designed to carry both wastewater and stormwater.
combined sewer overflow(CSO)	An overflow of combined sewers into surface waters when flows in the system exceed the capacity of the wastewater conveyance system. King County categorizes its CSO locations as either controlled or uncontrolled. Controlled CSO locations meet the Washington State Department of Ecology requirement that allows for no more than one untreated discharge per year.
control basin	A drainage basin similar to a pilot basin where no work was performed; it was used to compare the impact of change in the pilot basin as a result of rehabilitation.
conveyance system	A system, consisting of trunks, interceptors, force mains, pump stations, and other facilities which move wastewater from one place to another.
critical areas	Wetlands; streams; areas with a critical recharging effect on aquifers used for drinking water supply; fish and wildlife habitat conservation areas; frequently flooded areas; and geologically hazardous areas.
cured-in-place	Process of curing a resin that has been saturated in a fabric. The fabric is typically formed within an existing structure and will provide a rigid lining when the resin has fully cured.
cured-in-place pipe (CIPP)	Cured-in-place liner cured within a host pipe.
cutting laterals	The process where an air-powered motor with a cutter head is placed in the sewer main and is used to cut CIPP at the service connection. Typically a dimple in the liner shows where the hole is located.
dewatering	The removal of groundwater to reduce the flow rate or diminish pressure. Dewatering is usually done to improve conditions in surface excavations and to facilitate construction. Can also refer to removing water from a basin, tank, reservoir, or other storage unit, or from solid material such as the solids that are a byproduct of wastewater treatment.

discharge - direct or indirect	The release of treated or untreated wastewater into the environment. A direct discharge of wastewater flows into surface waters. An indirect discharge of wastewater enters a sewer system. Also used to describe water from a groundwater dewatering operation that enters surface water (direct), or a storm sewer (indirect), or to describe stormwater discharged to surface water.
drainage basin	Area that is drained by a river and its tributaries.
drawdown	Lowering of the water level in an aquifer, well, reservoir, or other body of water.
drop structure	A structure that would be built inside the influent portals to lower the wastewater conveyed from the shallower diversion structures to the deeper influent tunnel.
Earth Tech Team	A collection of firms led by Earth Tech that are providing consulting services to King County on the Regional I/I Control Program. The firms include KCM Tetra Tech, HDR Engineering, Cosmopolitan Engineering Group, Rosewater Engineering, ADS Environmental Services, Financial Consulting Solutions Group, Shannon and Wilson, and Triangle Associates.
easement	Rights obtained from a landowner to use a parcel of land for a specific purpose, such as for an underground pipeline or utility or for vehicular or pedestrian access to a road or sidewalk.
effluent	Treated wastewater that leaves the treatment plant.
Endangered Species Act of 1973, as amended (ESA)	Federal statute that provides protection for species of fish, wildlife, and plants that are listed as threatened or endangered.
Environmental Impact Statement (EIS)	A document that discusses the probable significant adverse environmental impacts of a development project or a planning proposal, discusses reasonable mitigation of identified impacts, and evaluates alternatives to the project and/or proposal. EISs are required under certain circumstances by the National Environmental Policy Act (NEPA) and/or Washington State Environmental Policy Act (SEPA).
exfiltration	Water that is discharged from a wastewater conveyance system into the ground through corroded or broken pipes or pipe joints.
fast response to rainfall	The water that quickly enters a wastewater conveyance system in response to rainfall. Typically this may be from pipe connections from storm sewers or combined sewers, catch basins, downspouts, and/or other surface runoff.
fill	Material used to raise the level of a low area or to make an embankment.
final design	The final phase of project design when contract plans and specifications necessary for bidding are prepared, and information needed by suppliers and contractors to construct the facility is provided. Follows predesign.

flow meter	A gauge that shows the rate of flow or volume of a fluid. In wastewater treatment, flow meters measure how many million gallons of wastewater moves through the system per day.
geographic information system (GIS)	A system of computer software, hardware, data, and personnel that helps manipulate, analyze, and present information that is tied to a spatial (usually a geographic) location.
gravity sewer	A sloping sewer pipe in which wastewater can flow by gravity.
groundwater	Water that infiltrates into the earth and is stored in the soil and rock within the zone of saturation below the earth's surface. Groundwater is created by rain, which soaks into the ground and flows down until it is collected at a point where the ground is not permeable. Groundwater then usually flows laterally toward a river, lake, or ocean. It is often used for supplying wells and springs.
groundwater table	The upper limit in the soil of underlying material permanently saturated with water.
Growth Management Act (GMA)	A Washington state law (Chapter 36.70A RCW), guided by procedural criteria and adopted by the Washington State Department of Community Development, that provides a legal framework and guidance for preparation of comprehensive plans, development regulations, and other land use planning for local governments.
head	The potential energy of water above a point. Head may be measured in either height (feet or meters) or pressure (pounds per square inch or kilograms per square centimeter).
host pipe	The existing sewer main or side sewer pipe inside which a liner is installed or within which a pipe bursting head is dragged.
hydrogen sulfide (H_2S)	A gas produced in sewers and digesters by anaerobic decomposition. Is detectable in low concentrations by its characteristic ”rotten egg“ odor, deadens the sense of smell in higher concentrations or after prolonged exposure, and damages the human nervous system from high exposure. Also converts to an acid when exposed to water and corrodes unprotected wastewater pipelines.
hydrograph	A series of flows and their associated times coming from one or more sub-basins. Hydrographs are used as input to King County’s hydraulic routing model to simulate the flows through trunk and interceptor systems.
hydrologic analysis	The study of the intensity and frequency of rainfall and the subsequent distribution and magnitude of flow into the wastewater conveyance system.
hydrologic cycle	The cycle of the earth’s water supply from the atmosphere to the earth and back, including precipitation, transpiration, evaporation, runoff, infiltration, and storage in water bodies and groundwater.

impervious surface	Any impenetrable material that prevents infiltration of water into the soil. Examples include rooftops, roads, parking lots, sidewalks, patios, bedrock outcrops, and compacted soil.
infiltration	The water that enters a wastewater conveyance system from the ground through means such as corroded or broken pipes, pipe joints,foundation drains, etc..
infiltration/inflow (I/I)	The total quantity of water from both infiltration and inflow without distinguishing the source.
inflow	The water discharged into a wastewater system from sources such as roof leaders, yard and area drains, foundation drains, cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers and combined sewers, catch basins, surface runoff, and street wash waters.
lateral	The portion of the private sewer service pipe on public right-of-way. Where the sewer service pipe is on private property, it is called a side sewer. See also “side sewer”.
local agencies	Water and sewer districts that receive wholesale wastewater services from King County.
manhole	A vertical shaft covered by a lid at ground level that provides access for maintenance of an underground pipe.
maximum wet-weather flow (MWWF)	The maximum daily wastewater flow during the wet winter months on rainy days. It is composed of maximum daily wastewater flows plus the maximum wet-weather infiltration/inflow during an approximately annual rainfall event.
Metropolitan Water Pollution Abatement Advisory Committee (MWPAAC)	MWPAAC advises the King County Council and Executive on matters related to water pollution abatement. It was created by state law and consists of representatives from the cities and sewer districts that operate sewer systems in King County. Most of these cities and sewer districts deliver their sewage to King County for treatment and disposal.
mini-basin	Drainage basins that were delineated as part of the 2000-2001 and 2001-2002 flow monitoring seasons. These basins were divided based on approximately 20,000 linear feet of sewer main within the basin.
mitigation	Avoidance of adverse impact by not taking a certain action or parts of an action; minimizing adverse impacts by limiting the degree or magnitude of the action and its implementation; rectifying an adverse impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating an adverse impact over time by preservation and maintenance operations during the life of the action; compensating for adverse impacts by replacing or providing substitute resources or environments.

National Environmental Policy Act (NEPA) Federal legislation establishing national policy that environmental impacts will be evaluated as an integral part of any major federal action. Requires the preparation of an Environmental Impact Statement (EIS) for all major actions significantly affecting the quality of the human environment (42 U.S.C. 4321-4327).

National Pollutant Discharge Elimination System (NPDES) Section 402 of the federal Clean Water Act. Prohibits discharge of pollutants from a point source into (navigable) surface waters of the United States unless a permit is issued by the Environmental Protection Agency, a state, or (where delegated) a tribal government on an Indian reservation. These permits are referred to as NPDES permits and, in Washington state, are administered by the Washington State Department of Ecology.

open cut A method for installing pipe near the surface, also called "trenching." The open-cut method consists of three stages: digging a trench and stockpiling excavated materials; installing pipe in the trench; and backfilling the trench and restoring the surface.

packer An inflatable plug that is placed inside a pipe and expanded with air pressure.

peak flow The highest base flow and infiltration/inflow expected to enter a wastewater system during wet weather at a given frequency that the treatment plant is designed to accommodate.

pH A measure of acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions. The number value increases with increasing alkalinity and decreases with increasing acidity. The pH scale ranges from 0 to 14.

pilot basin That portion of a mini-basin where rehabilitation work was actually performed for the pilot projects.

pilot project Mini-basin that was selected as a demonstration rehabilitation project for the King County I/I Control Program.

pit An excavation to facilitate trenchless underground construction such as pipe bursting.

point source A stationary location or fixed facility from which pollutants are discharged or emitted. Also, any single identifiable source of pollution, such as a pipe or ditch. A discharge pipe from a wastewater treatment plant or factory is a point source.

predesign The initial phase of a project design process.

pump station For wastewater purposes, a structure that houses pumps and other equipment for lifting wastewater in pipes to higher elevations so that it can continue to flow by gravity.

rapid infiltration	Infiltration into a wastewater conveyance system that is characterized by a rapid increase in flow during and/or shortly after a rainfall event, with gradual reduction in flow over a relatively short period after the event. This response is not as fast as inflow and is sustained longer than inflow.
Regional Wastewater Services Plan (RWSP)	A capital improvement program adopted by the King County Council in December 1999 to provide wastewater services to the King County Service Area through 2030.
Reinstating a service connection	Cutting the CIPP or tapping into the high density polyethylene (HDPE) pipe at the service connection so sewage can again flow into the main.
Relational Database Management System (RDBMS)	The database management system used during the Sewer System Evaluation Survey (SSES). Use of RDBMS facilitated links to information within or outside the database (for example, linking to GIS allowed the results to be viewed graphically).
residential customer equivalent (RCE)	A means by which King County charges its component agencies for wastewater services. For example, the charge for individual customers—single-family, multi-family, commercial, or industrial—in the City of Seattle is based on water consumption, which is converted into RCEs by dividing the monthly water consumption by 750 cubic feet. Component agencies outside the City of Seattle that do not measure residential water use charge each single-family house as one RCE; these agencies use the same method as the City of Seattle for their multi-family, commercial, and industrial customers.
return period	Average interval of the time or number of years between events of a given magnitude or larger (for example, peak discharge).
Revised Code of Washington (RCW)	A compilation of laws of the State of Washington published by the Statute Law Committee.
right-of-entry	A document signed by a property owner allowing work to occur on the property or access across the property.
right-of-way	A public or private right to use linear portions of properties, typically for roadway, railway, or utility purposes. Rights-of-way may be established through deeds or easements.
sanitary sewer	A pipeline that carries household, industrial, and commercial wastewater.
sanitary sewer overflow (SSO)	Untreated or partially treated overflows from a separated sewer in a wastewater conveyance system.
separated sewer	A wastewater pipe designed to accept and transport household, industrial, and commercial wastewater and to exclude stormwater sources.
sewage	See wastewater.

sewer	A pipe that carries wastewater and/or stormwater runoff from the source to a treatment plant or receiving water. Sanitary sewers carry household, industrial, and commercial wastewater. Storm sewers carry runoff from rain or snow. Combined sewers are used for both purposes.
shelf	The underwater equivalent of a plateau.
shoring	Props or posts of timber or other material in compression used for temporary support of excavations, formwork, or unsafe structures.
side sewer	The portion of the private sewer service pipe on private property. Where the sewer service pipe is on public right-of-way is called a lateral. Also see "lateral."
slow infiltration	Infiltration into a wastewater conveyance system that is characterized by a slow increases in flow during a rainfall event.. This increased flow may take several days or weeks after a storm to decline.
sole source	Specifying a product that only one manufacturer provides.
staging area	An area used for a number of purposes, such as parking and storing of materials and equipment, to support construction activities.
State Environmental Policy Act (SEPA)	A Washington state law (Chapter 43.21C RCW) that requires state agencies and local governments to consider environmental impacts when making decisions regarding certain activities, such as development proposals over a certain size, and comprehensive plans. As part of this process, environmental impacts are documented and opportunities for public comment are provided.
storm drain	A system of gutters, pipes, or ditches used to carry stormwater from surrounding lands to streams, lakes, or other receiving water. Also refers to the end of the pipe where the stormwater is discharged.
storm sewer	A pipe (separated from sanitary sewers) that carries only stormwater runoff from buildings and land surfaces.
stormwater	The portion of precipitation that does not percolate into the ground or evaporate. Stormwater flows across the ground surface in channels or ditches, or flows within pipes.
surcharge	The process of filling a conveyance pipe as a means to control sanitary sewer overflows.
surface water	Any water, including fresh water and salt water, on the surface of the earth.
suspended solids	Particles of organic or inorganic pollutants that float on the surface of, or are suspended in, wastewater and that cloud the water. Refers to sand, mud, and clay particles as well as solids in wastewater.
T-Liner®	A proprietary service connection and lateral liner (SCLL). A CIP product that lines a short section of the sewer main and up into the lateral. A product of LMK Enterprises.

TOP HAT™	A proprietary service connection liner (SCL). A CIP product that seals the connection of a lateral to the sewer main. A product of Cosmic Sondermashinenbau.
trenching	See open cut.
trenchless technology	A category of construction techniques that require little or no trenching to construct the improvements.
ultraviolet disinfection (UV)	A means to disinfect treated wastewater prior to discharge or reuse. Ultraviolet light penetrates the cells of microorganisms and destroys their ability to reproduce.
urban growth area (UGA)	Areas designated by counties in Washington state under the Growth Management Act within which urban growth is encouraged and outside of which growth can occur only if it is not urban in nature. Areas must be designated sufficient to accommodate projected growth for a 20-year period, and public services and utilities must be provided to serve the projected growth within the UGA.
Washington Administrative Code (WAC)	The codified regulations adopted by various Washington state agencies through the rule-making process.
Washington State Department of Ecology (Ecology)	The state agency designated by the Environmental Protection Agency (EPS) to be responsible for developing, implementing, and enforcing environmental protection laws and policies, including the state Clean Water Act and the Shoreline Management Act. Ecology issues the NPDES permit, which allows a wastewater treatment plant to operate.
wastewater	The water and wastes from homes and businesses that enter pipes and are transported to treatment plants for treatment and disposal.
water table	The upper surface of the zone of saturation of groundwater.
weir	An obstruction in the wastewater flow that is used to measure or control flow.
wetland	Land with saturated soils that are at least periodically inundated and that under normal conditions support vegetation suited to such environments. Wetlands include swamps, marshes, and bogs.